

What we claim is:

1. A redundant changeover apparatus comprising:

a changeover unit to change over two input signals which are mutually asynchronous in phase,

5 an extracting unit to extract clocks from output signals of the changeover unit,

a PLL circuit for inputting the extracted clocks,

a clock changing unit to provide the output signals with clocks changed to output clocks of the PLL circuit, and

10 a framing unit to frame output signals of the clock changing unit with the output clocks.

2. A redundant changeover apparatus comprising:

an extracting unit to extract data and clocks respectively of two input signals which are mutually asynchronous in phase,

15 a first and a second reference clock changing unit to change the data with reference clocks inputted externally,

a first changeover unit to change over data respectively outputted from the first and the second reference clock changing unit,

20 a second changeover unit to change over both of the extracted clocks, and

a clock changing unit to gradually change output data of the first changeover unit from clocks before the changeover to clocks after the changeover by the second changeover unit.

3. The redundant changeover apparatus as claimed in claim 2
25 wherein the reference clocks comprise in-house clocks or free-running clocks.

4. The redundant changeover apparatus as claimed in claim 2 wherein the clock extracting unit extracts clocks from a wavelength division multiplexing device.

30 5. The redundant changeover apparatus as claimed in claim 1 or 2 wherein the input signals comprise working input signals and

protection input signals from a wavelength division multiplexing device forming a ring network.

6. The redundant changeover apparatus as claimed in claim 1 or 2 wherein the input signals comprise working input signals and protection input signals from an arbitrary transmission device of a client.

7. The redundant changeover apparatus as claimed in claim 1 wherein the changeover unit comprises an optical switch.

8. The redundant changeover apparatus as claimed in claim 2 wherein the first changeover unit comprises an optical switch and the second changeover unit comprises an electric switch.

9. The redundant changeover apparatus as claimed in any one of claims 1 to 8 wherein the clock changing unit comprises a PLL circuit.

10. A node device comprising the redundant changeover apparatus as claimed in any one of claims 1 to 9, provided in duplicate for same transmission lines of a working system and a protection system to generate outputs of the clock changing unit of the working system and the protection system.

11. The node device as claimed in claim 10 wherein the changeover unit is commonly provided for each redundant changeover apparatus.